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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/711,890	10/12/2004	Takashi Yasunaga	GEMS8081.199	5889

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EXAMINER	
HO, ALLEN C	

ART UNIT	PAPER NUMBER
2882	

DATE MAILED: 03/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/711,890	YASUNAGA ET AL.	
	Examiner	Art Unit	
	Allen C. Ho	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 October 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 October 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *12102004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the second set of teeth must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

2. The drawings are objected to under 37 CFR 1.83(a) because they fail to show a second set of teeth as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). The specification is unclear as to whether there are two separate sets of teeth or a single set of teeth having extension in two directions. If it is the latter case, it is confusing labeling the physical extensions of a single set of teeth as two sets of teeth.

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the subject matter claimed in claim 5 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

4. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the subject matter claimed in claim 17 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet,

even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

5. The disclosure is objected to because of the following informalities:

Paragraph 33, line 18, "16" should be replaced by --14--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 15 recites the limitation "a pin" in line 4. It is unclear whether or not it refers to an indexing pin.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Igarashi *et al.* (U. S. Patent No. 6,587,538 B2).

With regard to claim 1, Igarashi *et al.* disclosed a CT detector comprising: a scintillator module (**240**) including at least one scintillator (**43**); at least one indexing pin (**243**) connected to the scintillator module; and a collimator assembly (**220**) having a plurality of collimator elements (**223**) and a plurality of teeth (**221a**, **222a**) configured to define a relative position of the plurality of collimator elements and a portion thereof configured to engage the at least one indexing pin.

With regard 2, Igarashi *et al.* disclosed the CT detector of claim 1, wherein the at least one scintillator includes a plurality of scintillators uniformly arranged in a scintillator array (Fig. 3A).

With regard to claim 3, Igarashi *et al.* disclosed the CT detector of claim 1, wherein at least two of the plurality of teeth are constructed to flank an indexing pin (the indexing pin is flanked by teeth on both sides, Figs. 9A and 9B).

With regard to claim 4, Igarashi *et al.* disclosed the CT detector of claim 1, wherein the plurality of teeth having a first set of teeth extending in a first direction and a second set of teeth extending in a second direction generally transverse to the first direction (Fig. 9B).

With regard to claim 5, Igarashi *et al.* disclosed the CT detector of claim 4, wherein the indexing pin is generally flanked by at least two teeth of the second set of teeth and has a side surface constructed to abut a side surface (**222**) of the second set of teeth (Fig. 9A).

With regard to claim 6, Igarashi *et al.* disclosed the CT detector of claim 1, further comprising at least one photodiode (**160**) configured to detect illumination of the at least one scintillator.

With regard to claim 7, Igarashi *et al.* disclosed the CT detector of claim 1 incorporated into a rotatable gantry of a CT imaging system (Fig. 1).

With regard to claim 8, Igarashi *et al.* disclosed a scintillator-collimator combination comprising: a plurality of collimator elements (**223**) configured to collimate x-rays projected thereat; a scintillator module (**240**) having a scintillator pack (**43**); and a comb (**221a**, **222a**) having a first set of teeth and a second set of teeth extending in a direction generally transverse to the first set of teeth, the first set of teeth and the second set of teeth constructed to align the plurality of collimator elements and the second set of teeth constructed to engage the scintillator module and align the scintillator module relative to the plurality of collimator elements.

With regard to claim 9, Igarashi *et al.* disclosed the scintillator-collimator combination of claim 8, wherein the scintillator module further comprises a locating pin (**243**) constructed to snuggly engage a recess (**222b**) of the comb, wherein the recess is defined between a pair of the second set of teeth (Fig. 9A).

With regard to claim 10, Igarashi *et al.* disclosed the scintillator-collimator combination of claim 9, wherein the locating pin is configured to align the scintillator pack with respect to the plurality of collimator elements such that the scintillator module does not overlap two collimator elements spaced apart from one another a distance equal to a width of the scintillator module.

With regard to claim 11, Igarashi *et al.* disclosed the scintillator-collimator combination of claim 8, wherein the first set of teeth and the second set of teeth define a distance between collimator elements (Fig. 9B).

With regard to claim 12, Igarashi *et al.* disclosed the scintillator-collimator combination of claim 8, configured to be optically coupled to a photodiode array (**160**) and configured to detect illumination from the scintillator pack and output electrical signals response thereto.

With regard to claim 13, Igarashi *et al.* disclosed the scintillator-collimator combination of claim 8, incorporated into a CT imaging system designed to acquire diagnostic data of a medical patient (Fig. 1).

With regard to claim 14, Igarashi *et al.* disclosed a CT system comprising: a rotatable gantry having a bore centrally disposed therein (required to collect CT projection data at a plurality of projection angles of a subject); a table movable for and aft through the bore and configured to position a subject for CT data acquisition (required to move a subject in and out of the bore); a high frequency electromagnetic energy projection source (**11**) positioned within the

rotatable gantry; a detector array (**20**) disposed within the rotatable gantry, the detector array including: a plurality of scintillator modules (**240**), each having a scintillator array and an indexing pin (**243**); a collimator assembly (**220**) having a plurality of collimator plates (**223**); and a detector support having at least one comb (**221**, **222**) of alignment teeth (**221a**, **222a**), the alignment teeth constructed to align the plurality of collimator plates, and constructed to engage an indexing pin to align a scintillator array with the plurality of collimator plates.

With regard to claim 15, Igarashi *et al.* disclosed the CT system of claim 14, wherein the at least one comb includes a first set of teeth extending in a first direction and a second set of teeth extending in a second direction different from the first direction, and wherein the second set of teeth engage an indexing pin (Fig. 9A).

With regard to claim 16, Igarashi *et al.* disclosed the CT system of claim 15, wherein the alignment teeth define a uniform spacing between collimator plates of the plurality of collimator plates (Fig. 9B).

With regard to claim 17, Igarashi *et al.* disclosed the CT system of claim 15, wherein the second set of teeth extends beyond an edge of the collimator plates (Fig. 9B).

With regard to claim 18, Igarashi *et al.* disclosed the CT system of claim 15, wherein the second set of teeth flank the indexing pin (Fig. 9A).

With regard to claim 19, Igarashi *et al.* disclosed the CT system of claim 14, wherein the indexing pin laterally extends beyond an end of a respective scintillator array (Fig. 8A).

With regard 20, Igarashi *et al.* disclosed a method of manufacturing CT detector comprising the steps of: providing a scintillator array (**240**) having at least one locator (**243**) extending beyond the scintillator array; providing a comb (**221**, **222**) having a plurality of teeth

(**221a**, **222a**) constructed to define a spacing between collimating elements (**223**) of a collimator (**220**); and positioning (**222b**) the at least one locator between at least two of the plurality of teeth (Figs. 8A and 9A).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

(1) Elgali (U. S. Patent No. 6,982,423 B2) disclosed a CT detector that comprises indexing pins (72).

(2) Chappo *et al.* (U. S. Patent No. 6,917,644 B2) disclosed a CT detector that comprises a collimator assembly (**44**) and indexing pins (**47**).

(3) Ratzmann (U. S. Pub. No. 2004/0120448 A1) disclosed a CT detector that comprises indexing pins (**55**).

(4) Saito *et al.* (U. S. Patent No. 6,396,898 B1) disclosed a CT detector that comprises a collimator assembly (**33**) and indexing pins (**31**).

(5) Orava *et al.* (U. S. Patent No. 5,955,733) disclosed a CT detector that comprises indexing pins (5a).

(6) Sugihara (U. S. Patent No. 5,848,116) disclosed a CT detector that comprises indexing pins.

(7) Hoffman *et al.* (U. S. Patent No. 5,799,057) disclosed a CT detector that comprises a comb (150) and pins (156, 158).

(8) Dobbs (U. S. Patent No. 5,487,098) disclosed a CT detector that comprises a collimator assembly (**26**) and indexing pins (**60**).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (571) 272-2491. The examiner can normally be reached on Monday - Friday from 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached at (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Allen C. Ho

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17 March 2006